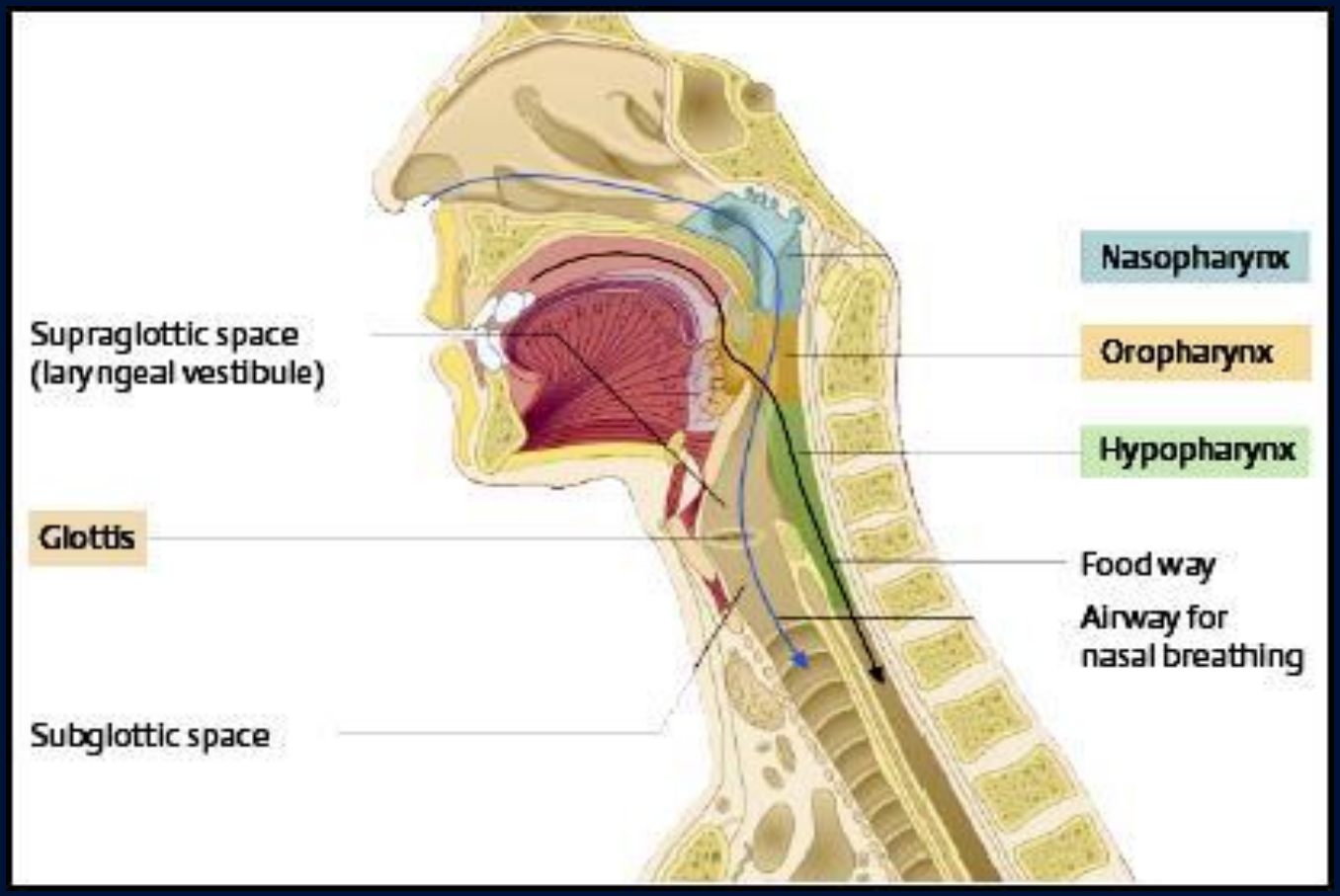
AERO-DIGESTIVE FOREIGN BODY & TRAUMA 2

Dr. Ahmed Al Arfaj

FOREIGN BODIES IN MOUTH &PHARYNX



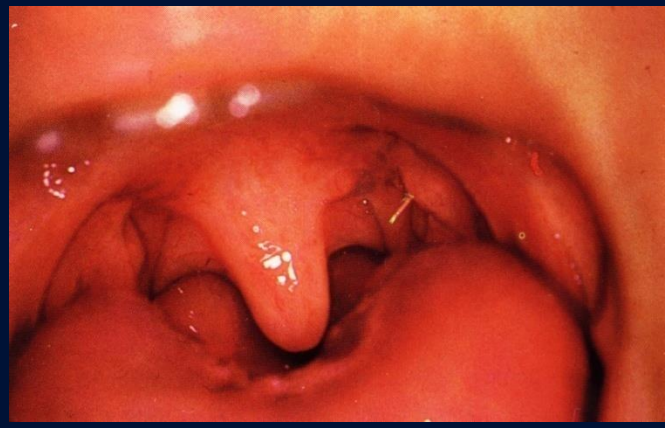
Foreign Bodies in the Mouth and Pharynx

Small pointed F.B.

splinters of bone, fish bones, bristles from a toothbrush, needles, nails, bits of wood and glass, etc.

Site of impaction

- tonsil
- the valleculla
- the base of the tongue
- lat. wall of the pharynx



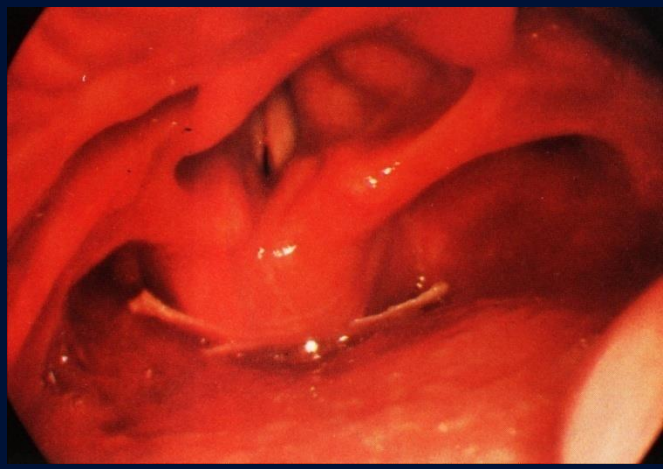
Foreign Bodies in the Mouth and Pharynx

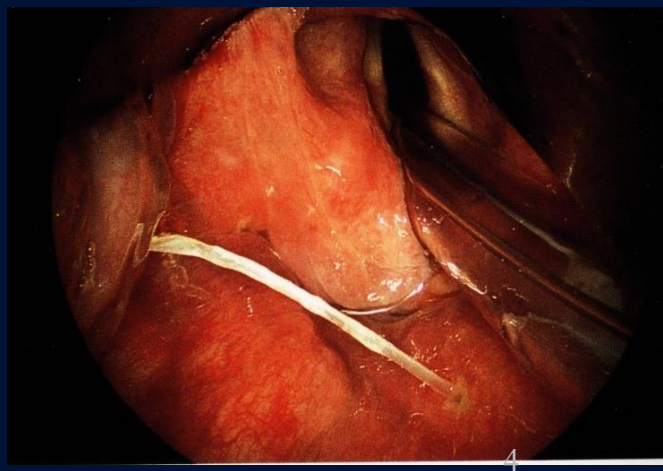
Large F.B.

bits of toys, flat bones, coins, buttons, large fish bones, bite of false teeth, etc.

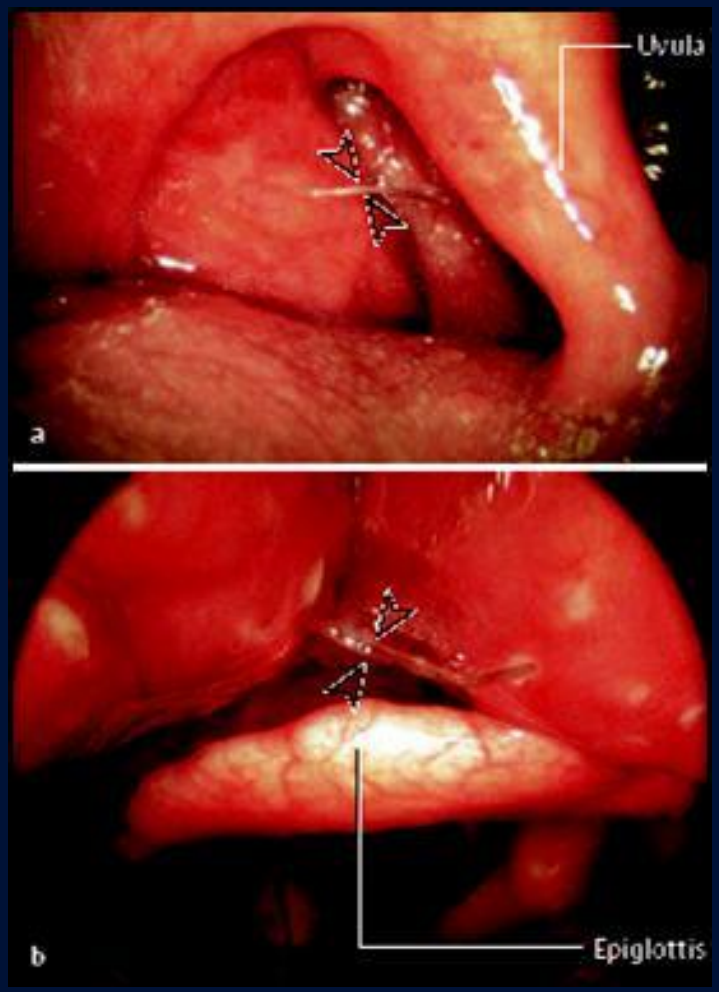
Site of impaction

- the piriform sinus
- hypopharynx





Trauma & Foreign Body II



Foreign Bodies in the Mouth and Pharynx

Odynophagia or dysphagia

Diagnosis:

- history
- radiography
- gastrografin swallow
- endoscopy

Treatment of Foreign Bodies in the Mouth and Pharynx

In the upper pharynx → direct vision rigid pharyngolaryngoscopy

NOTE

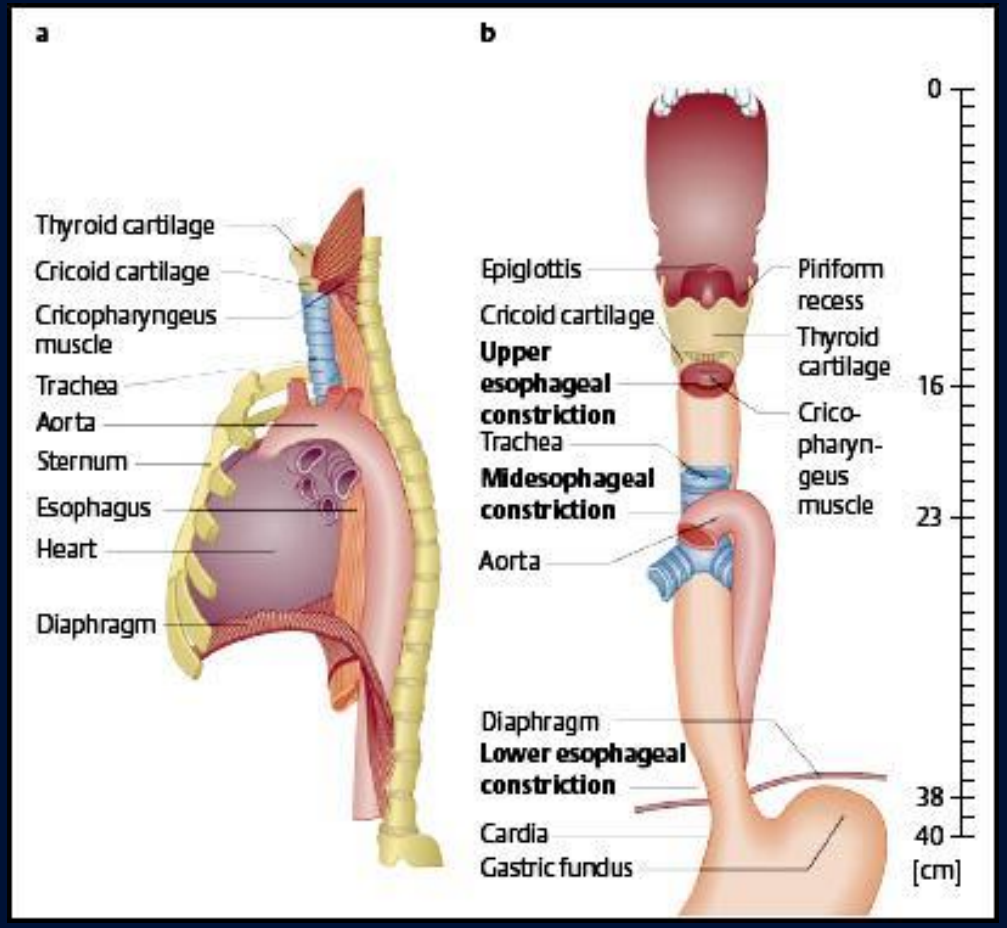
Attempts to dislodge F.B. by eating foods is not justifiable.

→May causes delay and allows complications to develop.

ESOPHAGEAL FOREIGN BODIES

Five Levels

-Cricopharyngeal
-Thoracic inlet
-Aortic arch
-Tracheal bifurcation
-Gastroesoesophageal



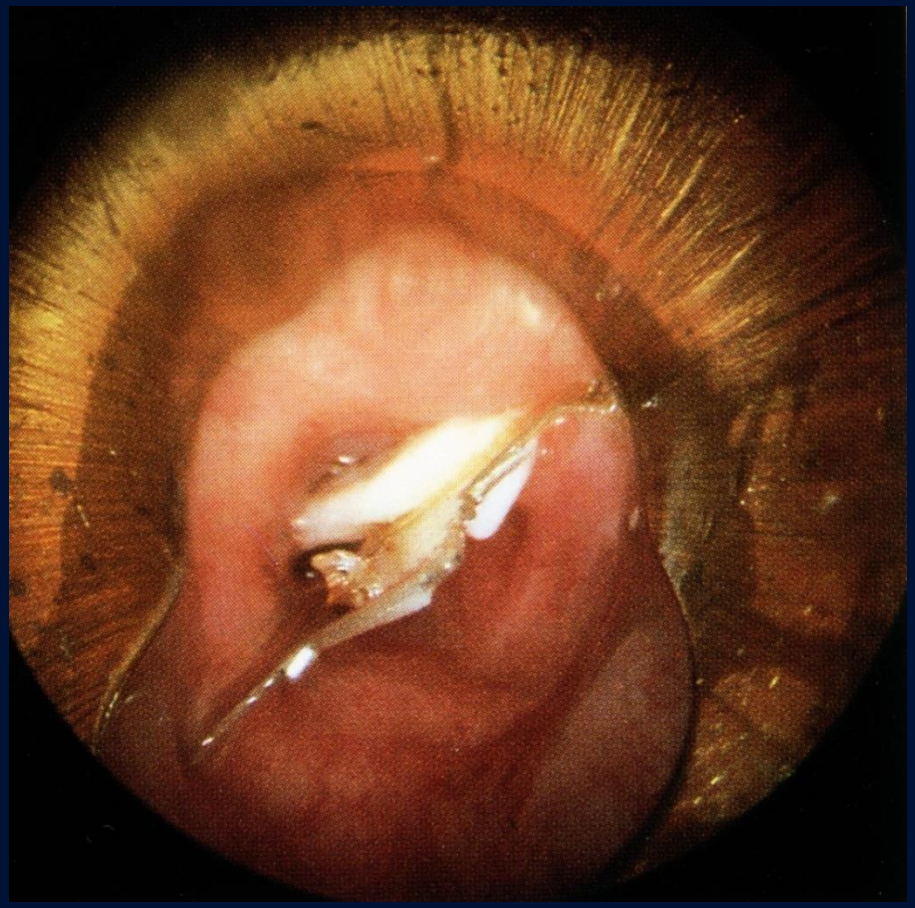
Esophageal Foreign Bodies

Unintentionally:

CHILDREN: (3years) coins, toys, etc.

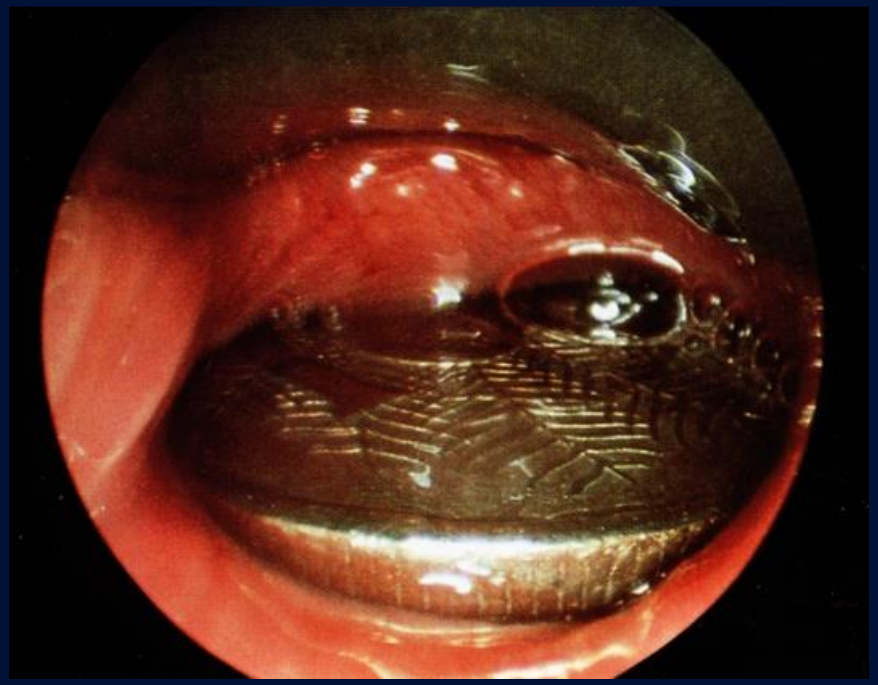
ADULTS : bones, glass splinters, fish bones, false teeth, nails, needles, or cutlery [e.g., prisoners]

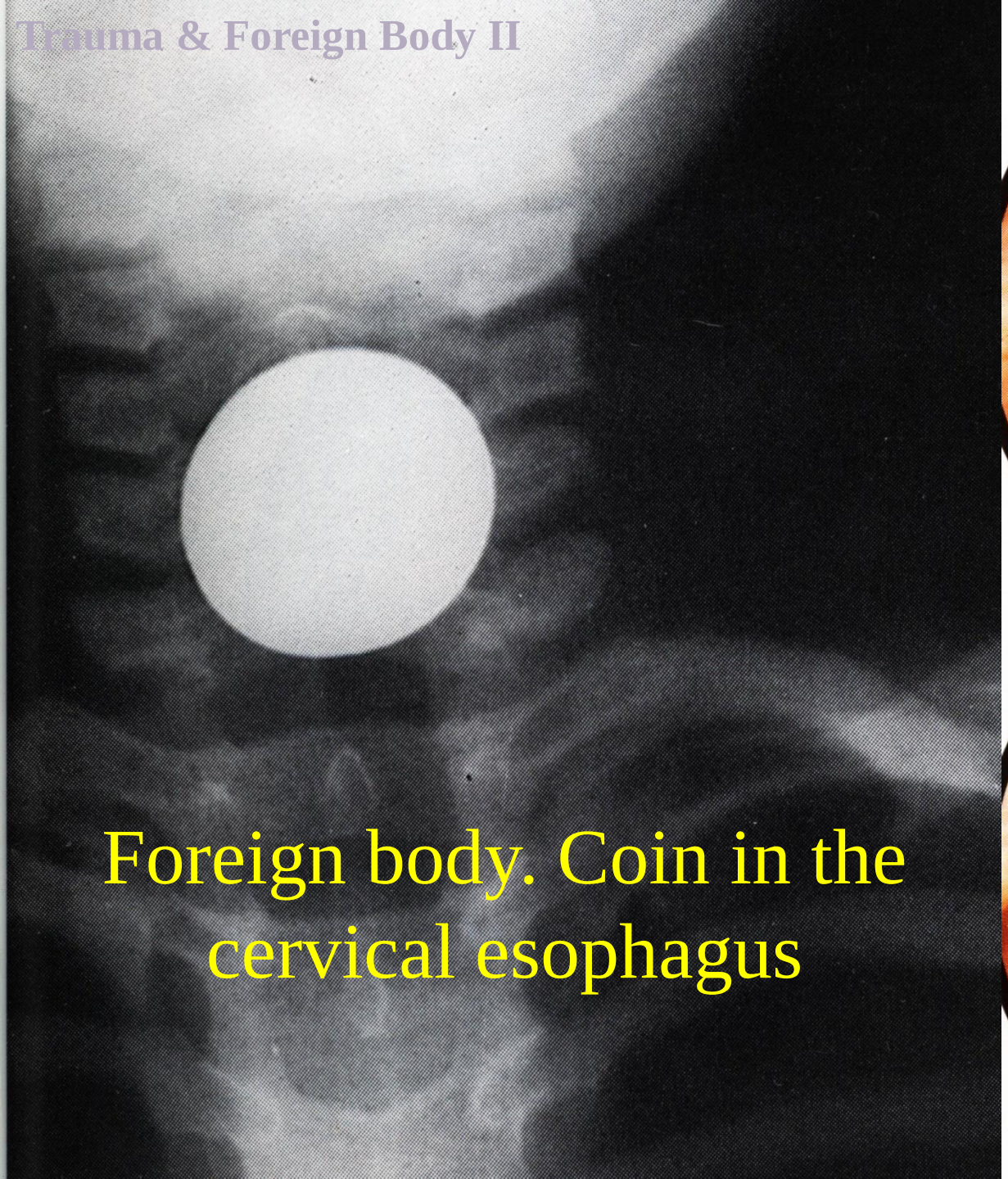
Oesophageal Foreign Body



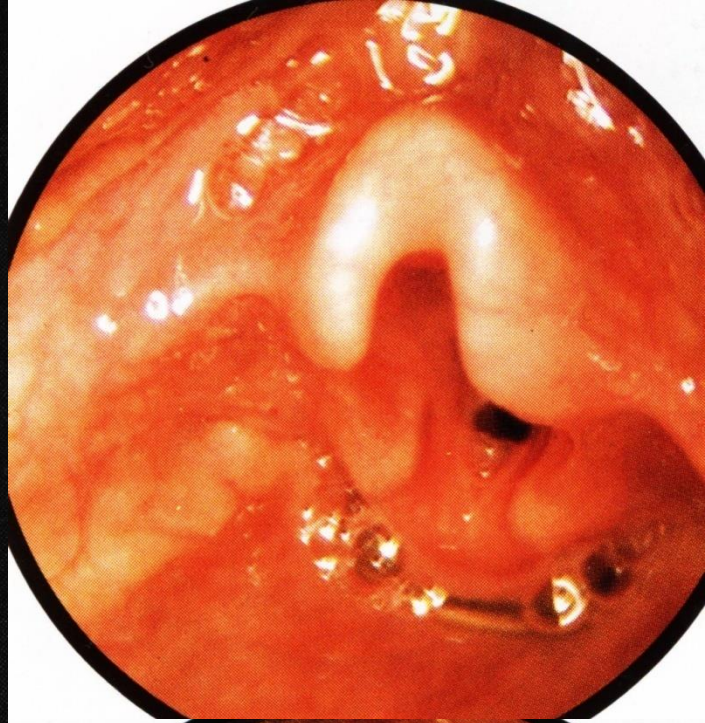
plastic star

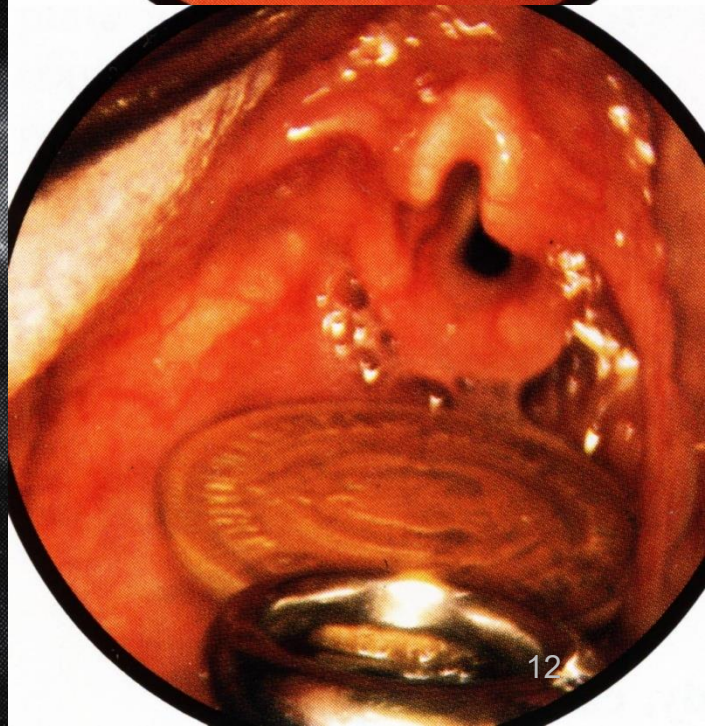
coin





Foreign body. Coin in the cervical esophagus





Oesophageal Foreign Body

Symptoms

- dysphagia, odynophagia
- drooling
- coughing
- early mediastinitis :

pain between shoulder blades & behind sternum

Esophageal Foreign Body

Pathogenesis

- upper esophageal sphincter
- necrosis → mediastinitis, pleuritis, or peritonitis
- paraesophageal abscess
- surgical emphysema

Esophageal Foreign Body

Diagnosis

History:

Inspection: swelling or subcut.emphysema

Palpation: neck & supra clavicular fossae

Radiographs: Radiopaque F.B.,
Mediastinal emphysema

Gastrografin: Radiolucent F.B.

Esophagoscopy

Differential Diagnosis

Esophageal Foreign Body

- mucosal lesions
- obstructive tumor

NOTE

if a FB is suspected, always check hypopharyx & esophagus endoscopically using flexible fiberscope

Esophageal Foreign Body

Treatment

Rigid *Esophagoscope.*

Cervical *esophagotomy*

Thoracotomy

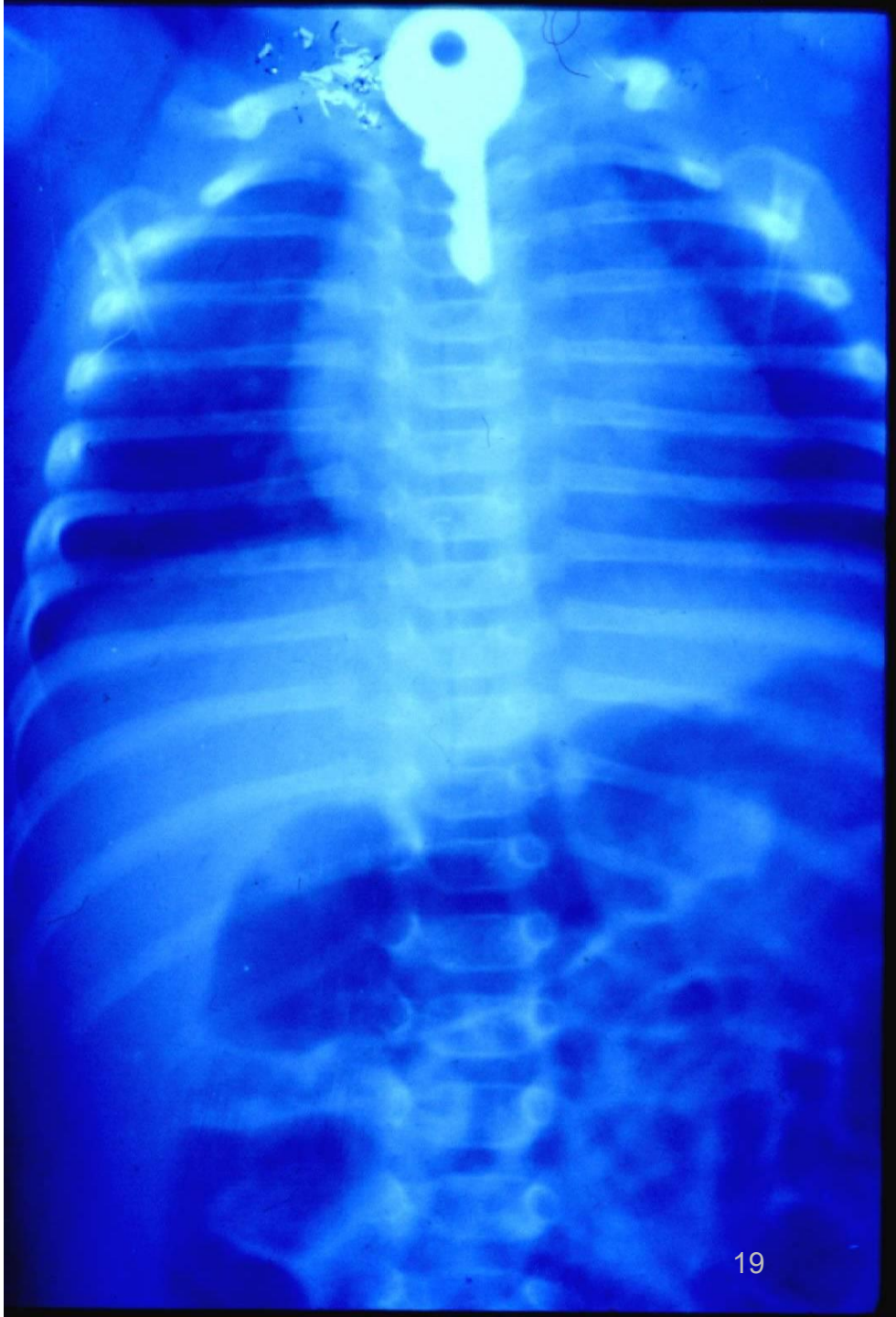
Perforation [*suture*]

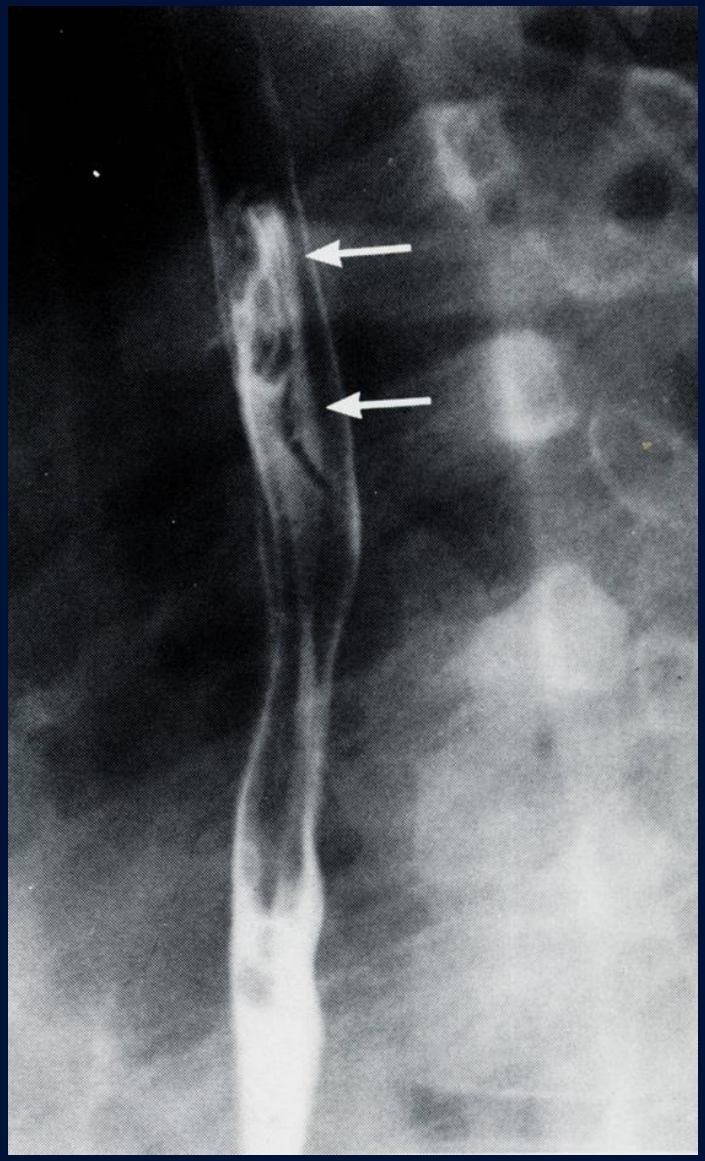
Paraesophagitis & abscess → *Drainage*

Esophageal Foreign Body Course & Complications

- no sequelae &mostly pass spontaneously.
- pressure nec. → mediastinitis
- radiographs: Gas emphysema
- perforation [gastrografin]
- stool analysis

Trauma & Foreign Body II

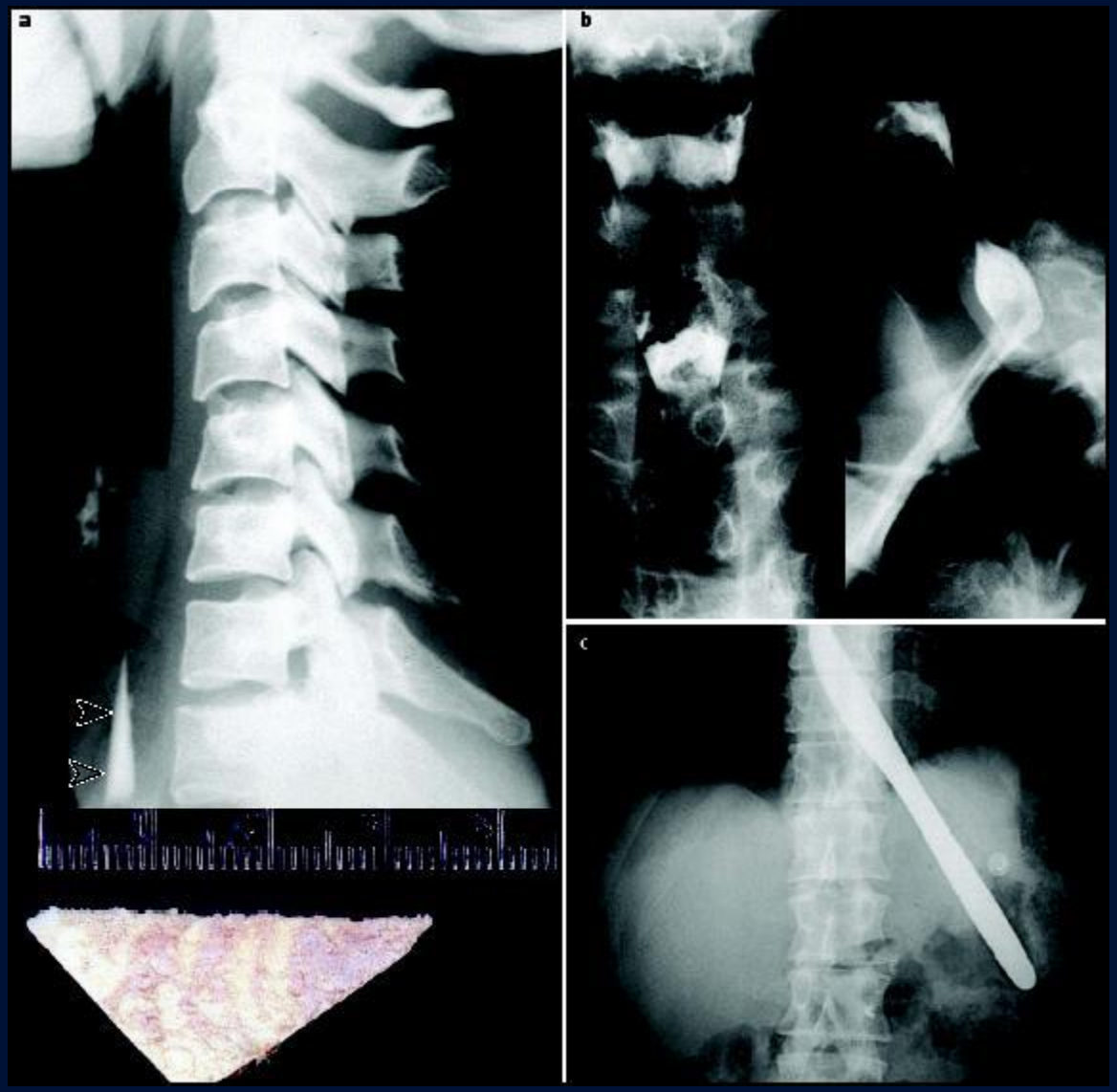


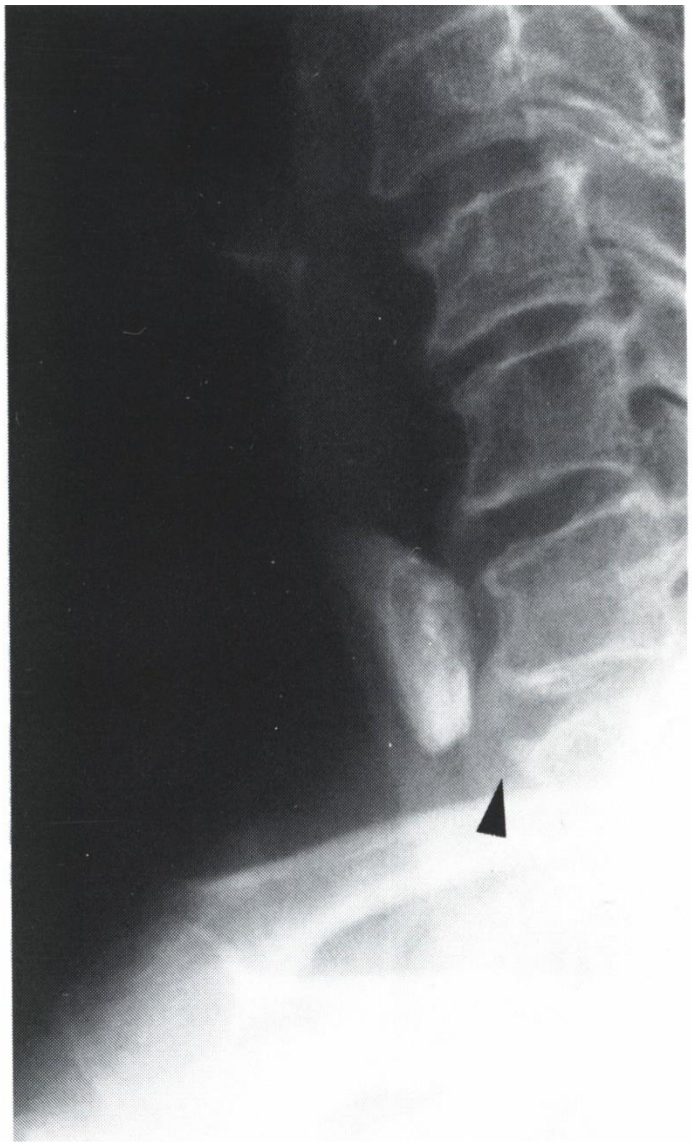


hair pin

flesh bolus

Trauma & Foreign Body II





hair pin

flesh bolus

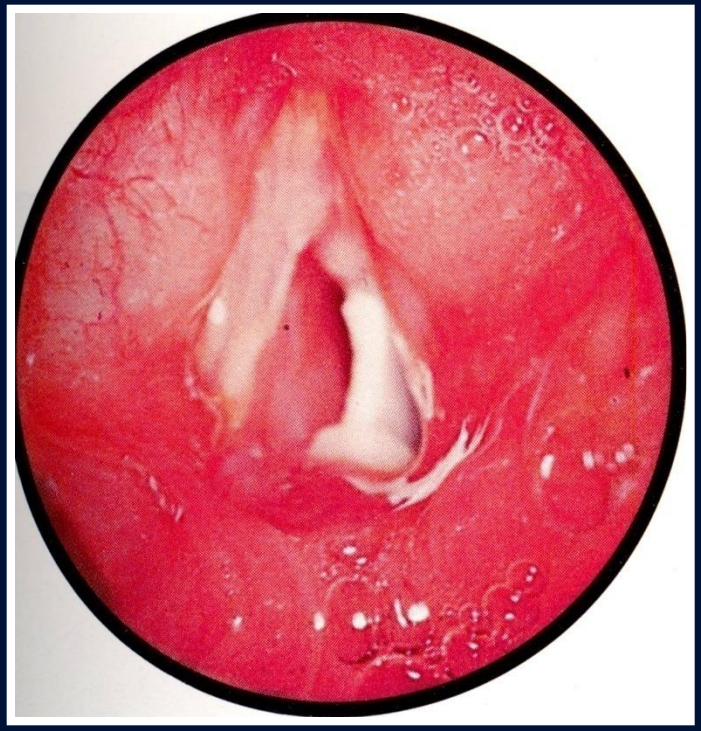
Trauma & Foreign Body II

FOREIGN BODIES OF THE LARYNX

Laryngeal Foreign Body

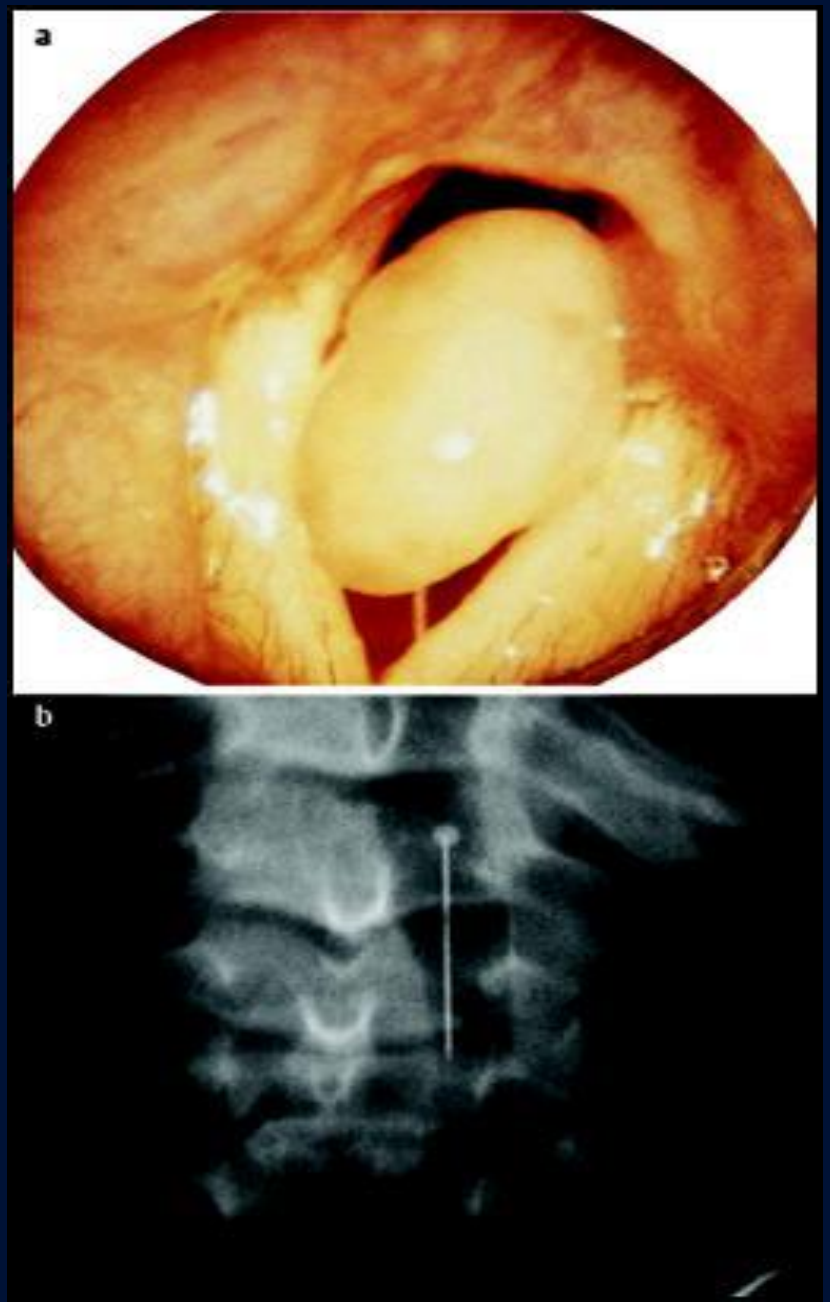
Symptoms

- attacks of coughing
- stabbing pains
- dysphagia
- dysphonia
- dyspnea in infant's
- asphyxia in large F.B.



eggshell, 10,
choked, stridor,
dyspnea > aphonia

Trauma & Foreign Body II



Laryngeal Foreign Body

glass

Laryngeal Foreign Body
Pathogenesis

common sharp-edged,
Pointed or large F.B.
F.B. aspiration:
- sudden fright, laughing
or absence of the sensory innervation of the larynx

nut shell

Laryngeal Foreign Body Treatment

- Heimlich Maneuver?
- Slapping the back with the patient's head down?
- Manual removal?
- Removal by laryngoscopy
- Tracheostomy or laryngostomy (cricothyrotomy)

Trauma & Foreign Body II

FOREIGN BODIES IN THE TRACHEOBRONCHIAL TREE

FOREIGN BODIES IN THE TRACHEOBRONCHIAL TREE

ETIOLOGY

Usually in infants and children (> 50% under 4 years of age)

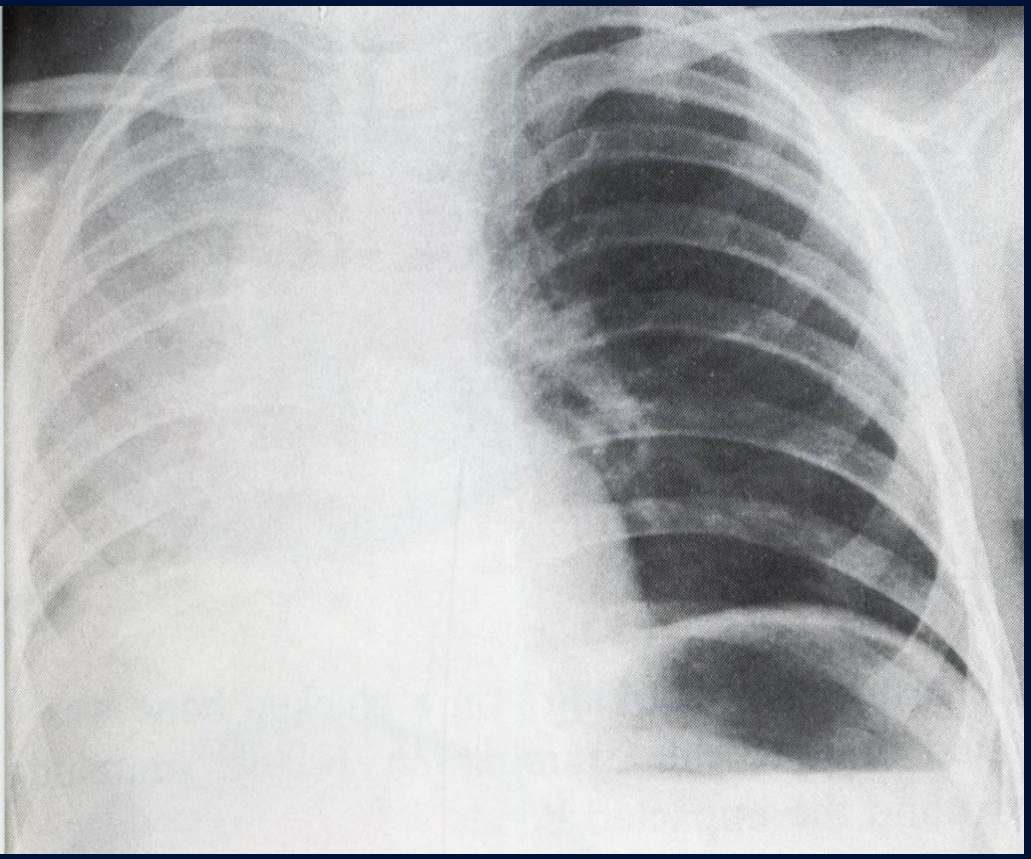
Male predominance (> 60%)

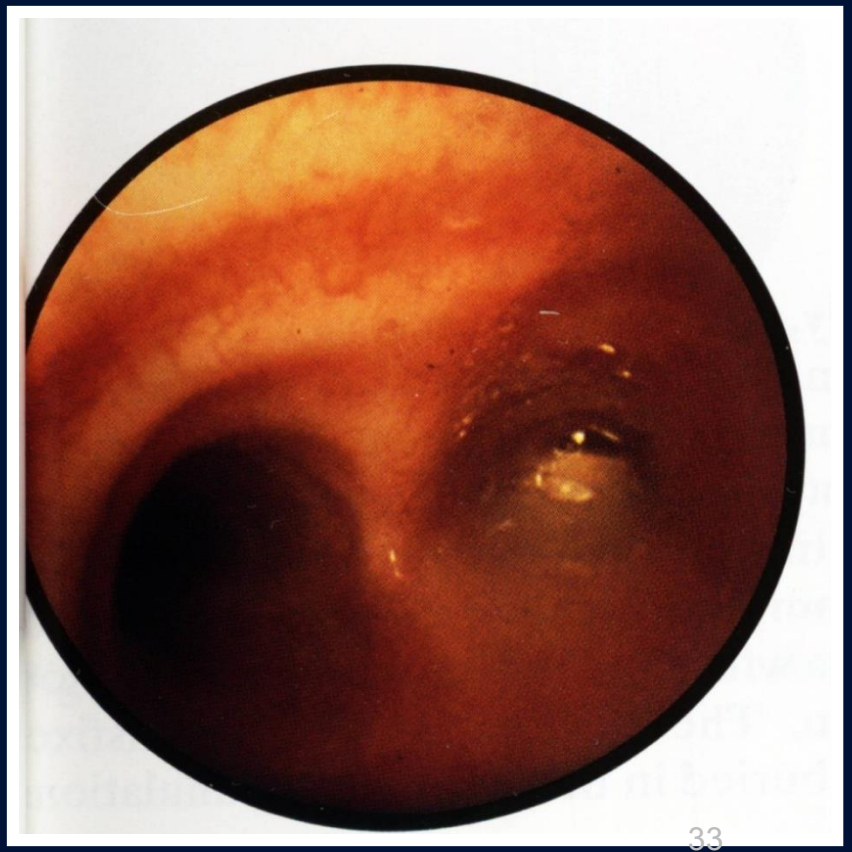
Most FB's are organic material (mostly food derivatives)

Location: Mostly in the right side (>60%)

Tracheobronchial Foreign Body

Peanuts, nails,
coins, balls





PATHOLOGY

Depends upon: nature, morphology and the position of the F.B.

No obstruction: no immediate effect

By pass valve obstruction: wheeze

Expiratory check valve: obstructive emphysema

Stop valve: atelectasis

CLINICAL PRESENTATION

Choking, cough, gagging & cyanosis

- Caused by laryngeal reflexes

Asymptomatic phase

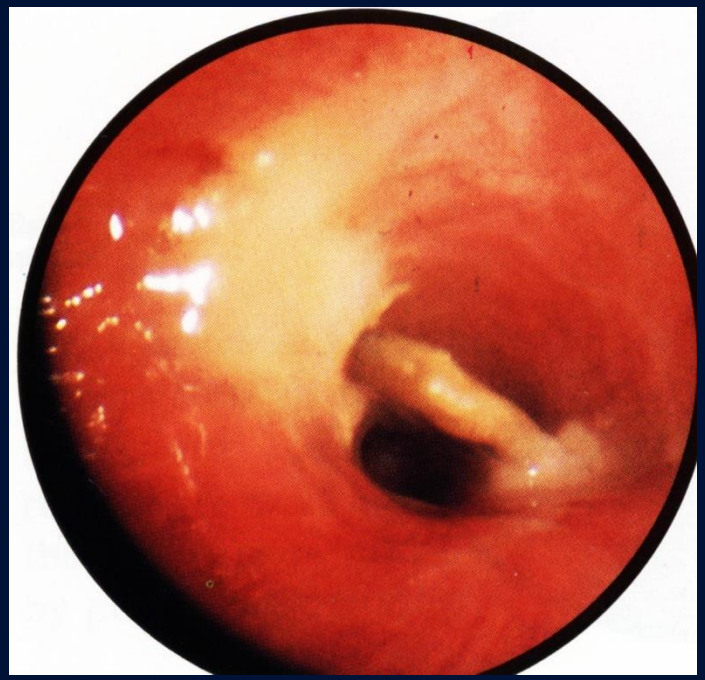
- Due to fatigue of cough reflex

Wheeze, intractable cough, persistent or recurrent chest infection.

- Due to emphysema, atelectasis or infection

Tracheobronchial Foreign Body Symptoms

metal joy



- Episodes of coughing
- dyspnea
- cyanosis
- pain
- intermittent hoarseness
- sudden death
- symptom-free intervals

RADIOLOGICAL FINDINGS

Normal findings

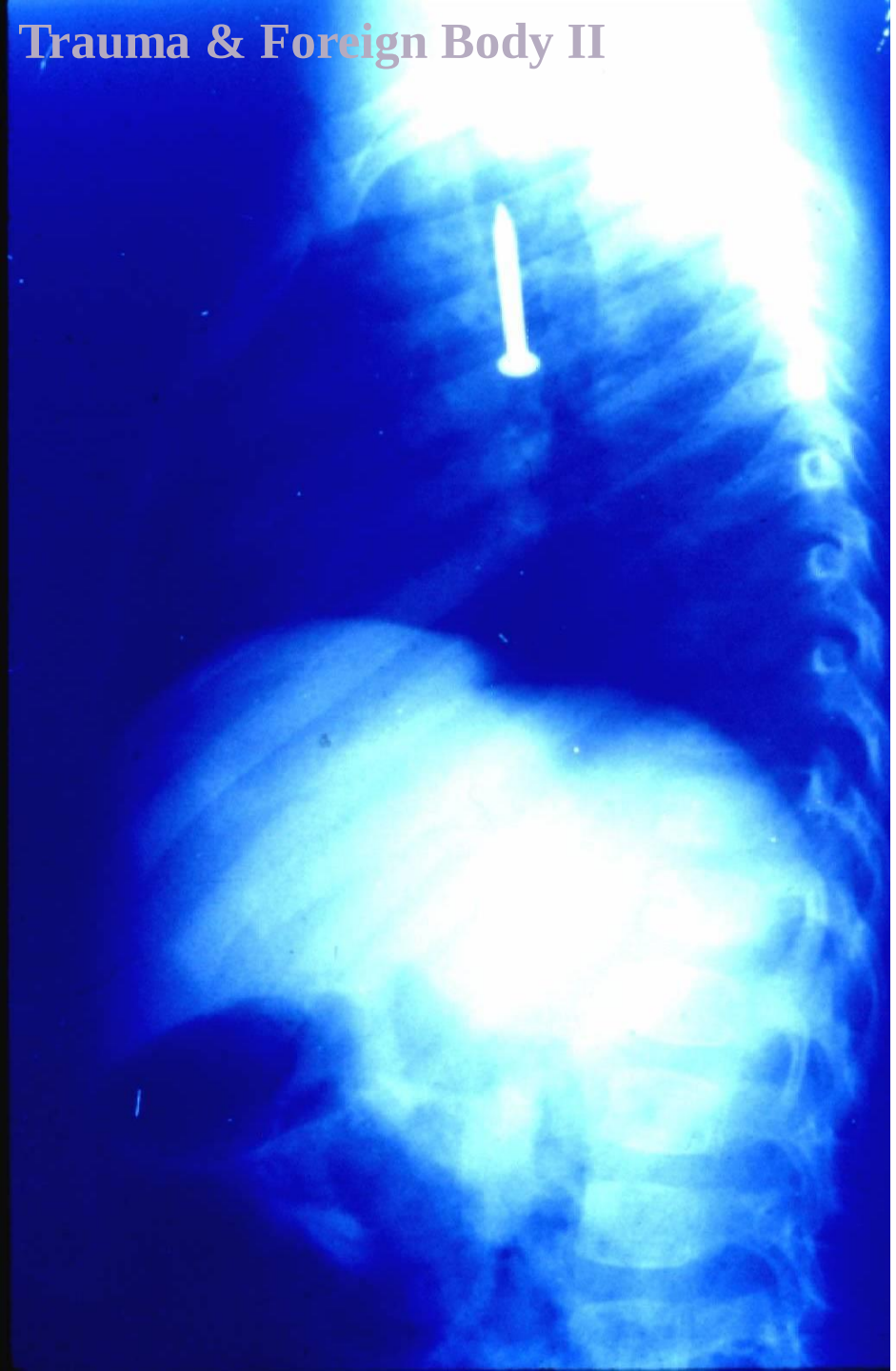
Obstructive emphysema

Atelectasis

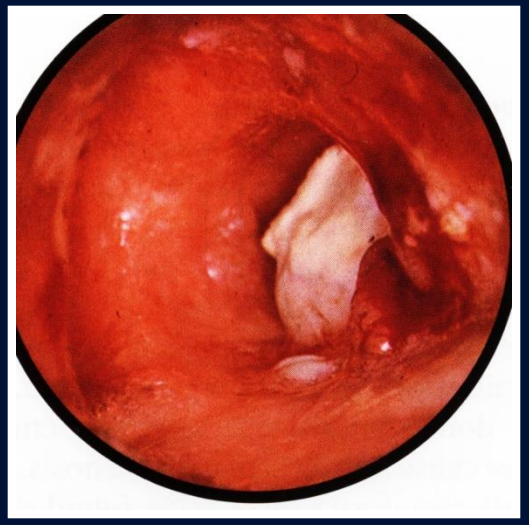
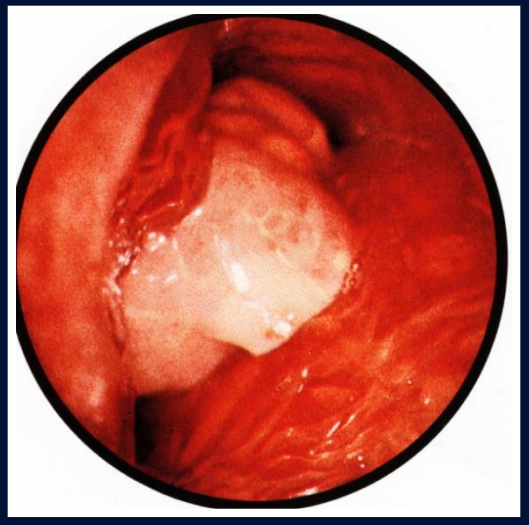
Radio-opaque F. B.

Pneumonia, pneumothorax etc.

Trauma & Foreign Body II



Tracheobronchial Foreign Body


Size & Shape

The Rt. main bronchus

Type & duration:

trachitis or bronchitis + edema, granulations

bleeding, resp. valvular stenosis, emphysema, atelectasis

Tracheobronchial chronic Foreign Body Differential Diagnosis

- diphtheria
- pseudocroup
- laryngeal spasm
- whooping cough
- bronchial asthma
- intraluminal tumors
- pulmonary tuberculosis
- pneumonia
- laryngeal stenosis
- tracheal stenosis (absent larynx movements)

Tracheobronchial Foreign Body Treatment

Endoscopy → extracted

Important:

Suspicion of a tracheobronchial foreign body is an absolute indication for endoscopy

TREATMENT

To be initiated on clinical suspicion

Bronchoscopy: in most cases

Bronchotomy

Esophageal Rupture and Perforation

CAUSES:

- iatrogenic instrumentation (most common cause)
- blunt and penetrating trauma
- neoplasms
- increased abdominal pressure

Esophageal Rupture and Perforation

VARIANTS:

Mallory Weiss Syndrome:

Boerhaave Syndrome:

Esophageal Rupture and Perforation

SIGNS & SYMPTOMS:

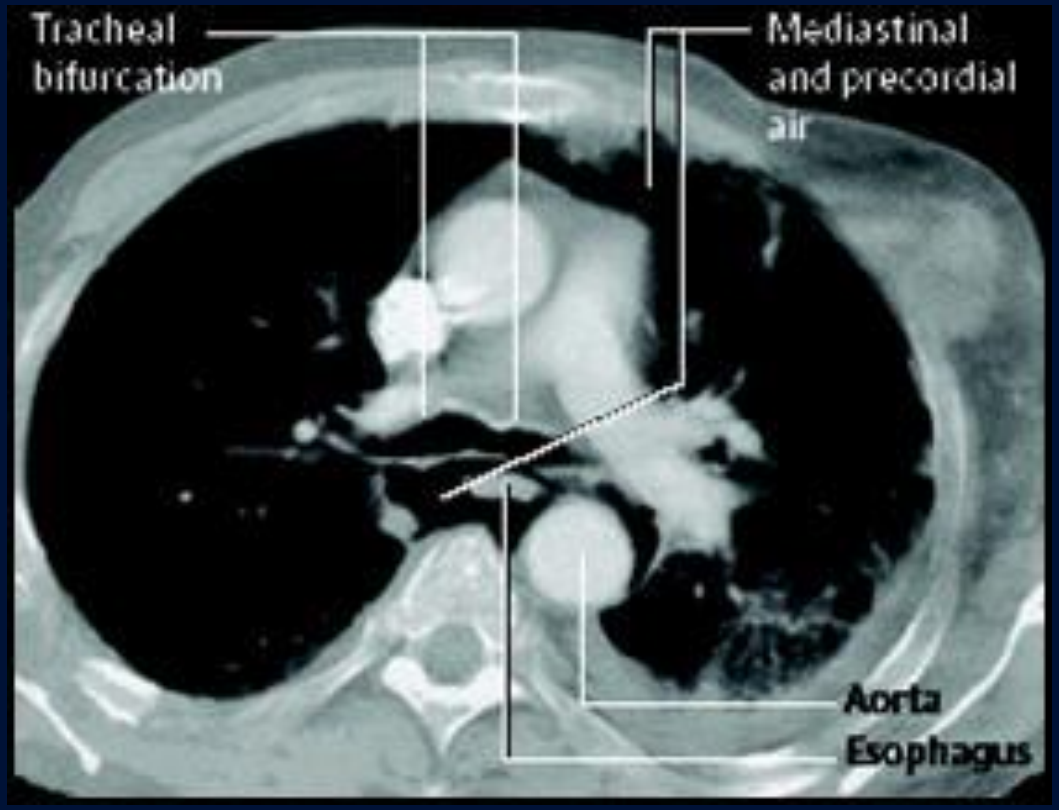
- chest pain
- fever
- dysphagia
- tachycardia
- respiratory distress
- subcutaneous emphysema
- Hammer's sign (crunching sound over heart from subcutaneous emphysema)

Esophageal Rupture and Perforation

DIAGNOSIS:

- clinical exam
- chest x-ray mediastinal widening or pneumothorax
- esophagogram (gastrografin)

Trauma & Foreign Body II



Esophageal Rupture and Perforation

COMPLICATIONS:

- chemical mediastinitis
  (saliva, bile, gastric acid)
- septic shock.

Esophageal Rupture and Perforation

TREATMENTS:

Early surgical repair and drainage (thoracotomy)may be considered

Medical therapy (antibiotics and observation) for smaller perforation in select patients

LARYNGEAL TRAUMA

LARYNGEAL TRAUMA

INTRODUCTION:

Blunt trauma has a higher risk of skeletal fracture than penetrating injuries

LARYNGEAL TRAUMA

SIGNS & SYMPTOMS:

- dysphonia
- dysphagia
- neck deformity
- subcutaneous air
- cough
- hemoptysis
- increasing stridor or dyspnea.
- subcutaneous emphysema.
- laryngeal pain and tenderness.

LARYNGEAL TRAUMA

MECHANISMS OF INJURY:

- motor vehicle accidents
- assaults
- clotheline injury
- strangulation
- penetrating injuries (gunshot wounds, knife)

LARYNGEAL TRAUMA

COMPLICATIONS:

- airway compromise
- laryngeal stenosis
- vocal fold immobility
  (aspiration, dysphonia)

LARYNGEAL TRAUMA

Pediatric laryngeal fractures are rare because of elasticity of cartilage and higher position of the larynx in the neck, however, children have higher risk of soft tissue injury

LARYNGEAL TRAUMA

- Endolaryngeal tears, edema and hematomas
- Arytenoids cartilage subluxation
- Cricoarytenoid joint injuries, may damage recurrent laryngeal nerve
- Cricoid fractures.

LARYNGEAL TRAUMA

cont…

- Hyoid bone fractures: may risk airway compromise
- Cricotracheal Separation: trachea tends to retract substernally and the larynx tends to migrate superiorly, high mortality,
- Pharyngoesophageal tears
- Recurrent Laryngeal nerve injury

LARYNGEAL TRAUMA

MANAGEMENT:

- Establish Airway and Stabilize Cervical Spine (ABCs)
- In Blunt trauma premature endotracheal intubation is avoided to prevent an airway crisis (fiberoptic intubation may be attempted)
- A surgical airway is a safe method (should be completed under local anesthesia)

LARYNGEAL TRAUMA

DIAGNOSIS:

- *Physical Exam:*
  soft tissue or hematoma, laryngeal tenderness and crepitus, subcutaneous emphysema, laryngeal tenderness.

- *Fiberoptic Nasopharyngoscope:*
  first line diagnostic test allows visualization of the endolarynx with minimal risk to airway, evaluate vocal fold mobility.

LARYNGEAL TRAUMA

DIAGNOSIS:

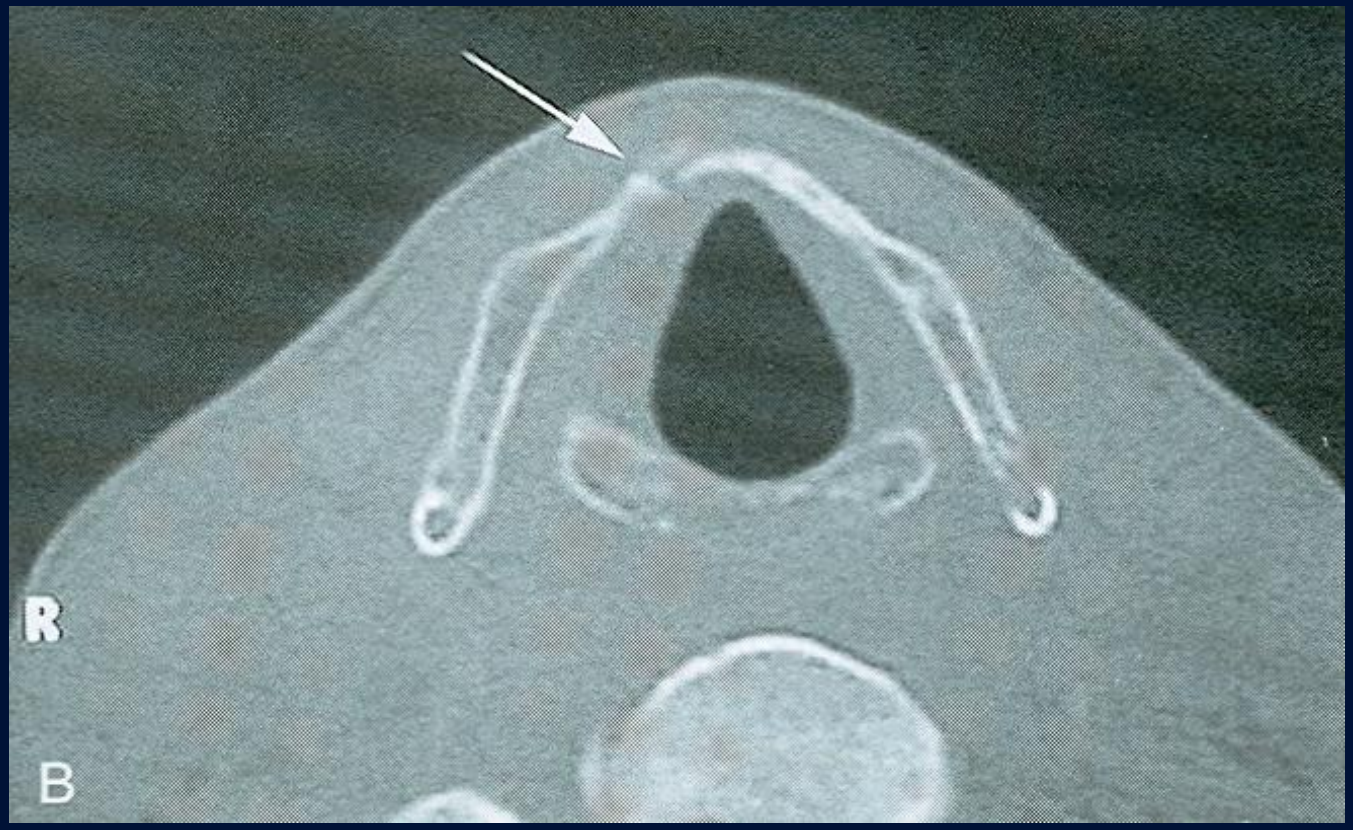
cont…

- *CT of Neck:*
  diagnostic test of choice
- *laryngograms*
  which may compromise a marginal airway)

- *Roentgenograms of the Neck:*
  largely been replaced with CT

LARYNGEAL TRAUMA

LARYNGEAL TRAUMA



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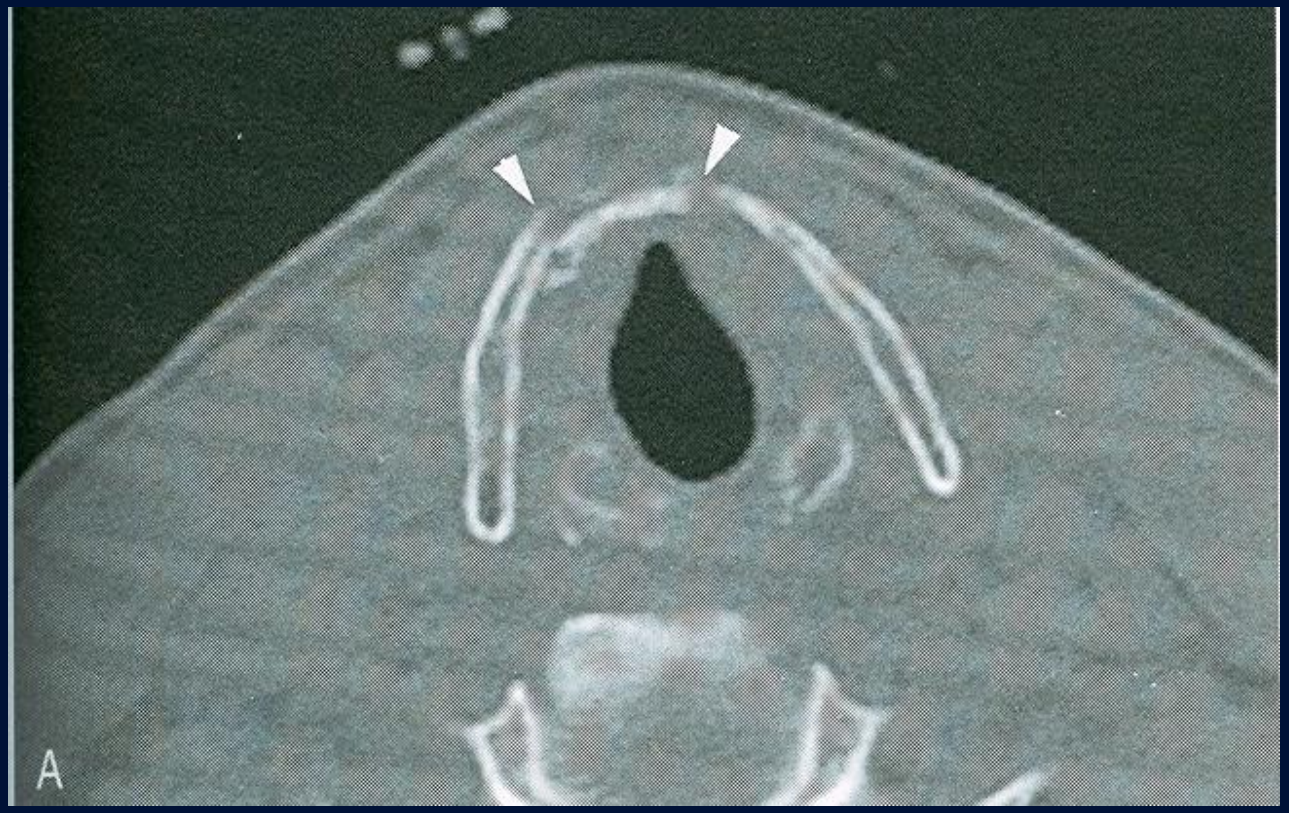

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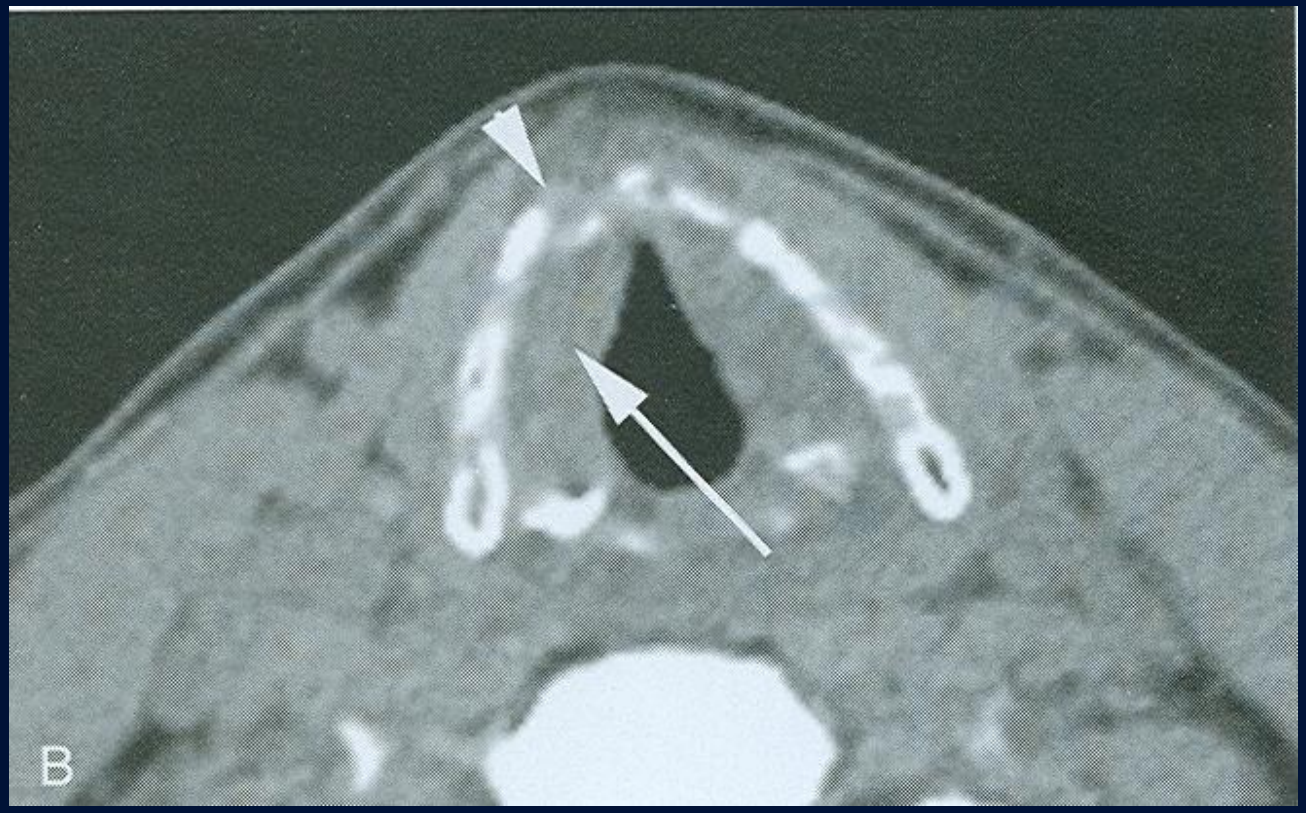

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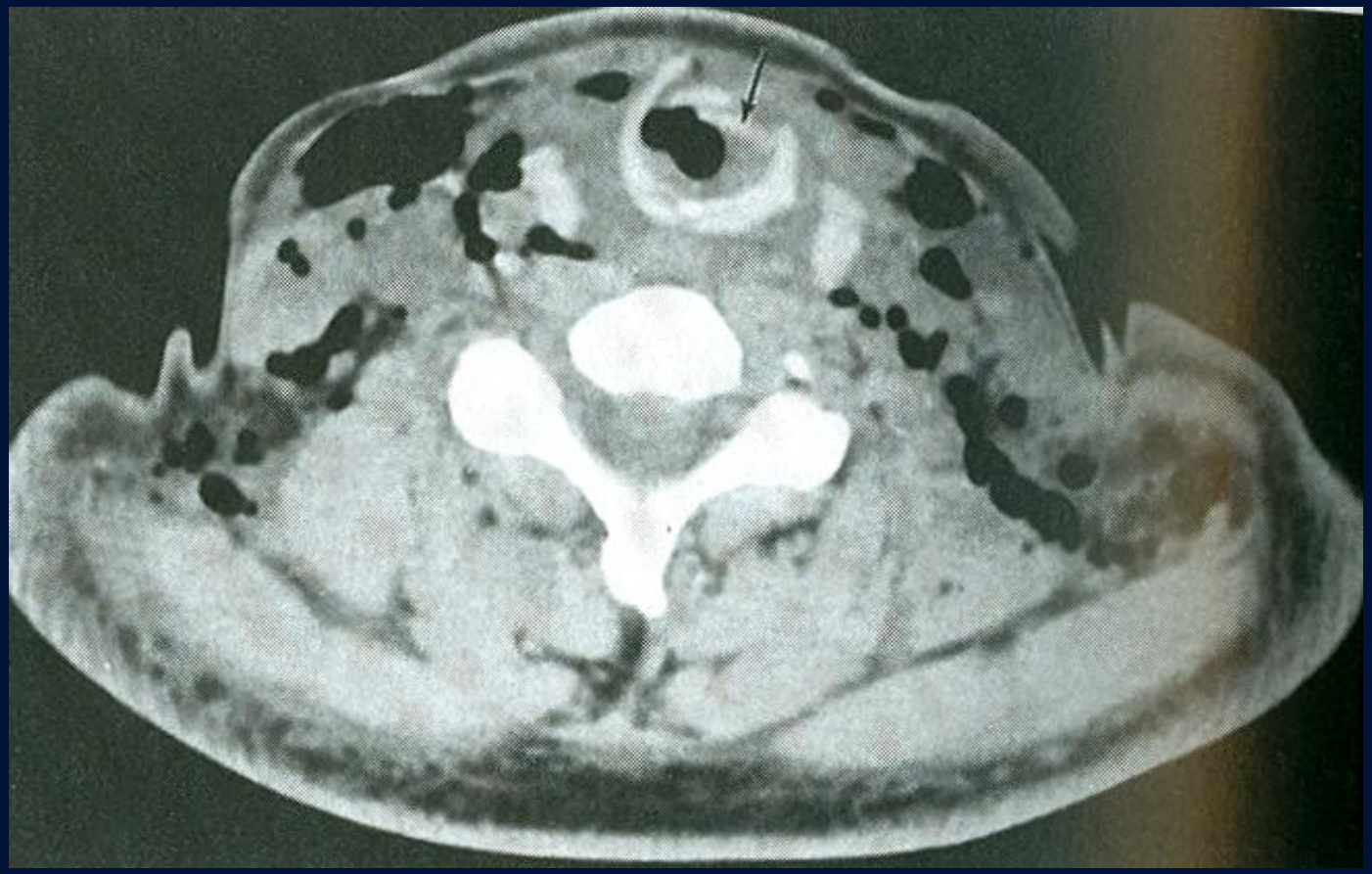

LARYNGEAL TRAUMA

DIAGNOSIS:

cont…

- *Esophagram:*
  best of begin with a water soluble contrast to avoid barium-sulfate induced mediastinitis

- *Direct Laryngosocopy and Esophagoscopy:*
  may be considered after airway has been established to evaluate the endolarynx (allows palpation of arytenoids)

LARYNGEAL TRAUMA

MEDICAL MANAGEMENT:

- Indications for Medical Management Only:
  smaller soft tissue injuries (hematomas, lacerations), single non displaced fracture (controversial) stable laryngeal skelton with an intact endolarynx

- Hospitalization
  for at least 24 hours for observation with tracheostomy set at bedside

- Nothing by mouth with hydration
-Prophylactic antibiotics, antireflux protocol, systemic corticosteroids

LARYNGEAL TRAUMA

SURGICAL MANAGEMENT:

- *Indications for Surgical Management:*
  large lacerations, airway obstruction, exposed cartilage, progressive subcutaneous emphysema, fractured or dislocated laryngeal skeleton, dislocated arytenoids, vocal fold immobility

- *Timing*:
  ideally should be repaired within 2-3 days to avoid infection and necrosis

- *Endoscopic Repair:*
  may attempt smaller mucosal disruptions and repositioning of arytenoids

LARYNGEAL TRAUMA

OPEN REDUCTION & REPAIR:

- Approach: midline thyrotomy or infrahyoid laryngotomy

- Repair mucosal injuries well to reduce potential of scarring and granulation tissue formation (may require focal flaps or grafts)

LARYNGEAL TRAUMA

OPEN REDUCTION & REPAIR:

- May reposition subluxed arytenoids (or remove for severe disruption)
- Laryngeal fractures should be reduced and immobilized
- Consider placing a keel or silastic stent for massive mucosal injuries
- Repair recurrent laryngeal nerve with microsurgical primary anastomosis

Thank you…